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Episode 57: Interview with Janie Merendino

Sam Statler: Hello listeners and welcome back to Episode 57 which is focused on pre-K through second grade number sense while also integrating some literacy practices. My colleague Amber Myers and I are going to be discussing the importance of number sense and how we can tie it back into literature in our classrooms.

Amber Myers: Hi Sam, I'm excited to be back on the show and I'm looking forward to our discussion. Today we're also joined by Janie Merendino: and Janie welcome. Would you mind giving our listeners a little bit of background about yourself and what you're up to now?

Janie Merendino: Sure, Amber. Well, I have been a math teacher of middle school. I've been a teaching fellow at Fairmont State University and I've been a Math coach in Marion County and then I went to become a math curriculum specialist in Harrison County where I ended my career just last October. Fortunate enough to have worked with Amber for like 5 or what six years?

And so, I got to see lots of different classrooms and work with lots of different teachers and teaching with teaching styles and people have always told me that I have a passion for mathematics and for making it make sense to kids and I like that they say that because that's where I find the most joy in my career is when I get other teachers to like math because you know. One teacher can influence 25 kids. Where if you're just in a classroom by yourself you only reach those few that you have, which is very satisfying also, but mathematics has always been my passion. Ever since I went back as a non-traditional student in the 80s and got my degree.

Amber Myers: Janie, I also think that not only do you make that passionate for the kids, but also passionate for the adults. Because I know you helped me a lot even with the steam and stem projects when we were working on things, and I would have questions for you, and you would walk me through it and help me so.

Janie Merendino: Yeah right yeah.

Sam Statler: Well, we're excited that you're here Janie and you know, just listening to all the experience you have with mathematics and in different schools and with different teachers. And I'm excited to hear some of the things you share today.

So for this episode we are going to be using a few different resources, one being the 10 things to know about math from NAECY, which was written by Alison Master. And according to this article she states that it is important to help young children develop mathematical thinking and knowledge because it predicts later academic achievement better than early reading or attention skills. Dr. Clements, who is an early math expert that was one of the authors of another resource that Amber and I use, also states that what they know when they enter kindergarten and 1st grade predicts mathematics achievement for years to come, and even predicts reading achievement because math is part of our everyday lives. Janie, how important do you think that this statement is? Do you agree, or do you have other thoughts to kind of share?

Janie Merendino: Oh, right, absolutely is that the sooner we can hook kids on math, the better that love of math will stay with them. Plus, you know our youngest learners. They're just like sponges. You give an idea to them, or a strategy or an activity for them to try and they deep dive into it. So, yeah, we've got to hook them when they're young and we've got to establish that growth mindset for mathematics right off the bat and then hopefully it will continue.

You know all through the rest of their careers, and so we've got to start that and hook them at that young age to see that math is a language. It's the way we describe the world. So yeah, starting as soon as we can is very important and to end getting those kids to think that whole metacognition process if we don't point that out. And if we don't nurture and facilitate that idea of kids thinking about what they're thinking about, you know, and communicating it well, it won't happen. So yeah, I agree with that statement from Clements.

Amber Myers: So Janie, you just talked about metacognition. How do you think we can foster that in the classroom? Because I completely agree with you and that's a big part of Reggio is getting the children to think about their thinking and then also the reflection of thinking about what they have done and then going back and changing it which is a big part of metacognition. Also, but just looking in

and working through the process, it's not always about the end product but the process on how to get there and the learning that takes place.

Janie Merendino: Amber and a few you guys are too young to remember when the National Council of Teachers of Mathematics Standards first came out, they have two sets. They had the content standards, you know, like geometry numbers and operations out of box thinking, problem solving and then they had the process standards, communications, and making connections representations, you know, representations could be with numbers, pictures or words and reasoning about your math and then problem solving. Well then, they came back around, and they came out with the standards of math practice which are also called the habits of mind. Well, the habits of mind were just the original title for all of these. You know, and there's posters that are out there, and I was telling him earlier that every teacher I think should have a listing of those posters if you will, and there's so many good ones out there that I used as a coach because I know.

So, when I was a teacher, if I didn't have a sentence strip that was posted in the back of my room that said, convince me you're right or justify your reasoning or show me in pictures, numbers or words. I would have just moved right on to the next lesson or to the next problem, you know. So, one thing is to put those ideas in front of teachers. I also used to make bookmarks. You know, a lot for teachers with good questions on there. So, if you don't, if the teachers don't have a reminder to do that, their own gets so involved, you know in just covering content rather than letting the content be uncovered by the kids.

So, we've got to put that in front of teachers. Then we've also got to get teachers to understand the importance of think time like you said. Reflecting give kids time. What did you learn today, you know? Ask questions that don't have a right or wrong answer. Those open type of questions. Uhm, how was your learning today was something that I used to say to kids and they would kind of like take them back. You know what does she mean by that? And then there's also a resource that I just looked up. It's called "Classroom Discussions Using Math Talk to Help Students Learn", and it is wonderful.

And then another way that I found that that really, really works is presenting things that are no fail, you know, like just what comes to my mind right now is

something that always used was just, you know that design with a bunch of big triangles with a bunch of little triangles you know, like by connecting the midpoints and asking kids how many triangles do you see there? Take your finger on a walk you know, like mazes, that crossover. Youcube.org has several of those creative thinking builders. Dr. Richard Cash who's the guru on differentiated instruction. That's what he says is that we will not get critical thinking developed if we don't encourage creative thinking first, and that's what stem activities do. That's what those theme-based activities do, and that's what children's lit can do.

Sam Statler: Yeah, that was so great. You just shared so many great things and I can't wait to go back and make notes on all the things you just shared Janie, but some of the things that stuck out to me were just encouraging that you know that higher level thinking and problem solving and giving children the opportunity, you know to share their thinking and then capitalizing on OK like this isn't correct. But thank you for sharing and let's see what someone else says about it or what can they add onto it. That was, I really liked that, you see.

Of that yeah, and just to kind of circle back to, I know you mentioned that number talk, and math talk Dr. Clements that we you know referred to earlier discusses the importance of math talk in the context of classroom play, and that activities should be active, and children are solving those problems and showing their solutions. You know individually and collaboratively that they're doing with others, and that the teacher and the children are using those age-appropriate mathematical terms to explain their answers. You know the teacher wants to take time to look for opportunities for students to count and problem solve. And you know, again, just making sure that they're asking those open-ended questions just to see a little further into their students' thinking.

And you know, when I was a first-grade teacher, I tried to give my students as many chances to discuss mathematical thinking you know that I could. And we incorporated those daily math talks. We talked about numbers along with you know class voting and estimating. You know those little things that like you said seemed to be put off for fun days or you know fun activities. Uhm, but there are also several wonderful books that are out there that you can incorporate in your teaching and just, you know, one book that I remembered off the cuff was how do dinosaurs count to 10. And that's a that's a really good book for pre-K, K, and

one. It talks about dinosaurs and it goes through counting to 10 and my students really enjoyed that book.

Janie Merendino: There was a I just saw a great list of good picture books and the website was. I don't. Mdatstanford.edu it's a list of 40 books to develop a love for math. At some kind of pictures from those literature, books should be used every day in a pre in the pre-K to 2nd grade classrooms. I mean even that as a middle school teacher, I used all kinds of literature books too, and the kids just loved it.

And you know why? I think in West Virginia we have a high number of kids who come from generational. Poverty and something that really Payne has always said is that kids learn best through stories. It's like the way they learned at home, so they value you know that ability to not only hear stories and learn through stories, but to tell them back to you so you know letting the kids write what happened the next day. You know, after the Ducks left the pond, you know what it look like the next day or let them come up and invent their own stories, and then that's going to give you that opportunity to talk about numbers to count, count, count.

I mean, you know, I used to think rote. Counting wasn't really math. Well, boy was I educated on that when I went to a national math conference in Chicago one year, and this researcher, math educator, researcher researchers, said the ability to count is an indicator of future math success. And you know that just that 123 counting as you take steps outside or, you know, you walk up steps or whatever.

Lays that foundation for being able to visualize the magnitude of numbers and where they come in, uh, in the line. So yeah, like you said, the math talk well you had counting is the first form of math talk that we want kids to do pre-K first grade kindergarten.

Amber Myers: I think to Janie, integrating those activities into steam activities and with math and using those picture books to build upon each other to reinforce those activities in the classroom. Just like when we did 10 black dots and we incorporated art into it and we brought so many other aspects. It was an integration of at least three to four content areas that those teachers were learning about and being able to incorporate and use math talk in those subject areas to where they didn't even think about it.

I think just having those ideas to incorporate in the classroom, I, I think brings the kids more real...creates a real...

Janie Merendino: The real-world connection. How it fits in the world. The language of how we describe our world using math, right? It's right there. You know, here's the thing that I found as having that wonderful opportunity to go into class. Like I said before, teachers get so tied up with what they want to accomplish in one day, that they are missing so many great opportunities to develop a deeper understanding. The concept if you will.

So, you know, even if it's just another teacher getting in and just listening for openings into the discussion, and I think. I mean, you know that's why coaching is so important, and sadly, it's one of the first things that goes in school systems. But with professional learning, community time even, and that's actually reflecting on student work with another teacher and just looking at common misconceptions, common errors. But then also you know those iPad swivel, and I think there's even something better out there now. That if a teacher would just record themselves and then watch it back and look for those opportunities, it makes them more Cognizant, cognizant of where they can step up their game a little bit, you know, and even having them track like how many different concepts did you touch on and when they see that maybe they've touched on 97. Then they'll realize that, hey, this same stem activity this same, just math lesson, could last me the whole rest of the week, because then I can go back and refer to what we did on this day, that's making that connection for the kids too. By being able to go back take student work.

Student work should be posted in every classroom. The drawings that kids do so you can go back and look at those, not those you know Pinterest looking bulletin boards that you see in so many rooms. Yeah, it looks like the room looks real nice, but where's the kid value to it? You know kids want to see their own stuff. So having them you read a little bit from one of those great literature books, and then you have kids draw picture their favorite part and then talk about where can we see math in this picture.

You know, maybe it's a, maybe it's 3 Billy Goats Gruff in that bridge. Well, how long is that bridge or who could make the biggest from a STEM project sitting there? Wow, you know you could do so much with that and that standard and

nonstandard idea of standard. A nonstandard unit in second grade that's so important for kids to understand that. So then if they see. You know, Johnny who's the tallest one in the classroom, and his bridge is 10 steps. Well, then why is little, tiny Joshua counting 20 steps? Well, right there, they're going to see it, and they're going to understand that that you know, that's just one example of a hard concept for kids to understand. So yeah.

Amber Myers: I think it's important to make it real for them by including their stories that they're familiar with, and I'm glad you brought up 3 Billy Goats Gruff. That's one of my favorites to use because there's a lot of math in there.

Janie Merendino: Right, right and just wonder, what do you wonder about building the bridge? You know before you do it and then listen to what kids say. You know, it's like every training I ever did, I tried to pass out one of those easel charts post-its so that teachers can record what the kids say from the “what do you wonder?” “What do you notice?”

I mean, you get great openings into concepts from that. Try it, you know. Just tell teachers try. I mean there is a book out there called “Wonder and Notice” you know, but you don't have to have that book. You can just do it with any picture you find.

I mean I would find myself driving somewhere you know, like I can still remember one time I was behind a log truck, and you know we were in third grade I was working with an array, and I wanted to get a picture of that. You know those logs? Because it was like 3 rows of three and four rows of four. You know that was awesome.

I think quick images should be done every day in the classrooms. You know you could just make your own with those little sticky dots, or with the bingo dauber. We used to pass those out in training to make our own quick images and let kids talk about what do you see and how do you see it? Those simple questions right there.

Sam Statler: Yeah, and I like you know you sharing that when you saw that log truck that you wanted to take a picture of it because I think using those real-life pictures you know and bringing them to talk about it. It's just a good connection for our students to make that, you know, math is in the real-life world and they

are going to keep seeing it. So Janie, this podcast is geared toward our early and elementary educators, and in your opinion like what are the some of the big ideas for math that these teachers should focus on.

Janie Merendino: Well, I think first of all, there's only one big idea for specially pre-K through 2nd and that's the idea about fluency. You know fluency if you ask your teachers what fluency is. It used to be when I first went to Harrison County and had opportunities to do this. It was like 8 out of 10 of them just said having the right answer.

Well, you know what? That's only a third of what fluency really is. Fluency is being able to make sense of numbers to compose to decompose numbers. These are all words from our standards. But I always said to think of the flea.

For flexibility, being able to be flexible with numbers, I can look at 38 and I can see it as $30 + 8$ but also, I can see it as 33 and five or two less than 40. You know if we don't give him that opportunity to talk about numbers, that flexibility will never happen.

And then the e is for efficiency because we want them to be efficient with all these strategies, we teach them, or the strategies that honest to goodness will just be discovered by kids as early as kindergarten and 1st grade. That you know, yes, you can count on to add, it'll work every time, but if you're going to add $13 + 7$ you don't want to count on 13 or even seven really. You want to look for a way to make sense out of that and be more efficient if you're going to add $38 + 15$. You don't want to count on 15. You want to take two from the 15 and make that 38 or 40 and then at 13.

So that's what efficiency is, so flexibility, efficiency, and then last but not least the A for accuracy or automaticity. If I had to add one more thing, one more idea, I would probably say that idea of fives and 10s. That's the foundation to place value because we want them to have that in their head. We want them to know that five is 4 and one or two and three. We want kids to know also that for any number. Like as any number there are $N + 1$ ways to show that within two sets. Like if you had five, well, I'm going to be able to come up with six ways to make five, you know. Zero and five one and four, two and three. Three and two, four and 1/5 and 0. That's true for any number, and you know what?

Kindergarteners can discover that if you're charting it leaving student work up in the room, they ask you how many ways to make 4, how many ways to make 3. They're going to soon see that hey, it's always just one more than that number. That's a deep idea. Same thing then with ten you know which is the fluency standard for first grade is knowing numbers well through 10. Kindergarten through 5 and second is first grade and through 20 for 2nd grade. Just think how much easier the next grade classroom would be if every kid came there knowing those last previous years fluency with that number.

But yet they don't spend enough time doing that. Working with those strategies. I mean I do trainings that are so eye opening for teachers when I do like vertical planning, and they all say oh so they should come to me in 3rd grade knowing that $7 + 6$ is 13. You know those basics? Yeah, and if we talked about that every day for a year in school 99.9% of your kids would be fluent with numbers through 20.

Amber Myers: So, Janie I love that you're talking about fluency and place value. And then I love how you highlighted the standards for kindergarten, 1st and 2nd. But what is one piece of advice for pre-K through second grade teachers who are wanting to incorporate literature into their mathematical teaching practices that you would give them?

Janie Merendino: Well, first of all, like we said, every day you should refer to a piece of literature or a quick image. That's going to have that in and build your number talk because math is learned visually. It's not a performing subject, it's a visualizing it and representing it. I mean, Dr. Boaler tells us that math is learned through five different pathways, and they've wired kids up that when they're using their fingers. The pathways that light up in the brain are the same pathways that light up when they're doing calculus and trig higher-level math.

So you know, we've got to get that visual pathway cut deep, you know we got to get those connections ingrained and that's going to happen for sure in those primary grades. So having some kind of a visual math lesson everyday would be my advice to them, and then valuing that number talk time. Don't just put it off for you know, like when I can fit it in or right before recess, when you know they're not thinking anything about math, it needs to be a integral valuable part of your day every day.